

Precipitation Processing System (PPS) Product Format Description

Hybrid Scan Reflectivity (HSR)

HSR is a 16-level product. It is generated once every volume scan. Its Symbology block only has one layer. The range of data level values (dBZ) varies with operational mode (i.e. precipitation mode and clear air mode), area climatology and season, and with NEXRAD system (or agency) adaptation data. The range of Reflectivity supported by the RDA is -32 to +95 dBZ. The data level threshold in the following table is the precipitation mode. This product is not compressed.

The following table provides a detailed specification of the HSR product.

[Note: a half-word (INT*2) is 16 bits]

MESSAGE HEADER

References

2620001F (Class I User ICD):
Fig 3-3 "Message Header"

HALF-WORD	FIELDNAME	TYPE	UNITS	VALUE	PRECISION/ACCURACY	NOTES
01	Message Code	INT*2	N/A	33	N/A	From Fig 3-3
02	Date of Message	INT*2	Julian Date	1 to 32,767	1	From Fig 3-3
03-04	Time of Message	INT*4	Seconds	0 to 86,399	1	From Fig 3-3
05-06	Length of Message	INT*4	N/A	18 to 409856	1	From Fig 3-3
07	Source ID	INT*2	N/A	0 to 999	1	From Fig 3-3
08	Destination ID	INT*2	N/A	0 to 999	1	From Fig 3-3
09	Number of Blocks	INT*2	N/A	3	1	From Fig 3-3

PRODUCT DESCRIPTION BLOCK

References

2620001F (Class I Users ICD):
Fig 3-6 "Graphic Product Message" Sheet 2, Sheet 6, Sheet 7
Table III "Message Codes for Products"
Table V "Product Dependent Halfword Definition for Product Description Block"

2620003F (Product Spec ICD):
1-2 Color Level Code Table

HALF-WORD	FIELDNAME	TYPE	UNITS	VALUE	PRECISION/ACCURACY	NOTES
10	Block Divider	INT*2	NA	-1	N/A	From Fig 3-6 Sheet 6
11-12	Latitude of Radar	INT*4	Degrees	-90 to +90	0.001	From Fig 3-6 Sheet 6
13-14	Longitude of Radar	INT*4	Degrees	-180 to +180	0.001	From Fig 3-6 Sheet 6
15	Height of Radar	INT*2	Feet	-100 to +11000	1	From Fig 3-6 Sheet 6
16	Product Code	INT*2	N/A	33		From Table III
17	Operational Mode	INT*2	N/A	0 to 2	N/A	From Fig 3-6 Sheet 6
18	Volume Coverage Pattern	INT*2	N/A	1 to 767	N/A	From Fig 3-6 Sheet 6
19	Sequence Number	INT*2	N/A	-13, 0 to 32767	1	From Fig 3-6 Sheet 6
20	Volume Scan Number	INT*2	N/A	1 to 80	1	From Fig 3-6 Sheet 6
21	Volume Scan Date	INT*2	Julian Date	1 to 32767	1	From Fig 3-6 Sheet 6
22-23	Volume Scan Start Time	INT*4	Seconds GMT	0 to 86399	1	From Fig 3-6 Sheet 6
24	Product Generation Date	INT*2	Julian Date	1 to 32767	1	From Fig 3-6 Sheet 6
25-26	Product Generation Time	INT*4	Seconds	0 to 86399	1	From Fig 3-6 Sheet 6
27	Not used	INT*2	N/A	0	N/A	From OSF doc
28	Not used	INT*2	N/A	0	N/A	From OSF doc
29	Elevation Number	INT*2	N/A	0 to 20	1	From Fig 3-6 Sheet 6
30	Not used	INT*2	N/A	0	N/A	From OSF doc
31	Data Level Threshold 1	INT*2	dBZ	ND	N/A	From Product Spec. 1-2
32	Data Level Threshold 2	INT*2	dBZ	5	N/A	From Product Spec. 1-2
33	Data Level Threshold 3	INT*2	dBZ	10	N/A	From Product Spec. 1-2
34	Data Level Threshold 4	INT*2	dBZ	15	N/A	From Product Spec. 1-2
35	Data Level Threshold 5	INT*2	dBZ	20	N/A	From Product Spec. 1-2
36	Data Level Threshold 6	INT*2	dBZ	25	N/A	From Product Spec. 1-2

HALF-WORD	FIELDNAME	TYPE	UNITS	VALUE	PRECISION/ACCURACY	NOTES
37	Data Level Threshold 7	INT*2	dBZ	30	N/A	From Product Spec. 1-2
38	Data Level Threshold 8	INT*2	dBZ	35	N/A	From Product Spec. 1-2
39	Data Level Threshold 9	INT*2	dBZ	40	N/A	From Product Spec. 1-2
40	Data Level Threshold 10	INT*2	dBZ	45	N/A	From Product Spec. 1-2
41	Data Level Threshold 11	INT*2	dBZ	50	N/A	From Product Spec. 1-2
42	Data Level Threshold	INT*2	dBZ	55	N/A	From Product Spec. 1-2
43	Data Level Threshold 13	INT*2	dBZ	60	N/A	From Product Spec. 1-2
44	Data Level Threshold 14	INT*2	dBZ	65	N/A	From Product Spec. 1-2
45	Data Level Threshold 15	INT*2	dBZ	70	N/A	From Product Spec. 1-2
46	Data Level Threshold 16	INT*2	dBZ	75	N/A	From Product Spec. 1-2
47	Maximum Reflectivity	INT*2	dBZ	95	1	DOORS version of Class I Users ICD
48	Date of Scan	INT*2	Julian Date	1 to 32767	1	DOORS version of Class I Users ICD
49	Average Time of Hybrid Scan	INT*2	Minutes	1 – 1439	1	DOORS version of Class I Users ICD
50	Not Used	INT*2	N/A	0	N/A	DOORS version of Class I Users ICD
51	Not Used	INT*2	N/A	0	N/A	DOORS version of Class I Users ICD
52	Not used	INT*2	N/A	0	N/A	From OSF doc
53	Not used	INT*2	N/A	0	N/A	From OSF doc
54	Version	INT*1	N/A	0	1	From the CVT view

HALF-WORD	FIELDNAME	TYPE	UNITS	VALUE	PRECISION/ACCURACY	NOTES
54	Spot Blank	INT*1	N/A	0 to 1	1	From Fig 3-6 Sheet 6
55-56	Offset to Product Symbology block	INT*4	Half-words	60	1	From OSF doc
57-58	Offset to Graphic Attributes block	INT*4	Half-words	0	1	From OSF doc
59-60	Offset to Graphic Alphanumeric block	INT*4	Half-words	0	1	From OSF doc

PRODUCT SYMBOLOGY BLOCK

References

2620001F (Class I User ICD):

Section 3.2.1.2 "Product Symbology Block"
 Fig 3-6 "Graphic Product Message" (Sheet 8)
 Fig 3-8b "Text and Special Symbol Packets"
 Fig 3-10 "Radial Data Packet"

2620003 (ICD for Product Specification):

33-1 HSR Product Description

HALF-WORD	FIELDNAME	TYPE	UNITS	VALUE	PRECISION/ACCURACY	NOTES
61	Block Divider	INT*2	N/A	-1	N/A	From Fig 3-6 Sheet 8
62	Block ID	INT*2	N/A	1	N/A	From Fig 3-6 Sheet 8
63-64	Length of Block	INT*4	Bytes	1 to 400000	1	From Fig 3-6 Sheet 8
65	Number of Layers	INT*2	N/A	1	1	DOORS version of Class I Users ICD
66	Layer Divider	INT*2	N/A	-1	N/A	From Fig 3-6 Sheet 8
67-68	Length of Data Layer not including layer divider and layer length	INT*4	N/A	1 to 400000	1	From Fig 3-6 Sheet 8
69	Packet Code	INT*2	N/A	AF1F(Hex)	N/A	From Figure

HALF-WORD	FIELDNAME	TYPE	UNITS	VALUE	PRECISION/ACCURACY	NOTES
						3-10
70	Index of First Range Bin	INT*2	N/A	0	1	From Figure 3-10
71	Number of Range Bins	INT*2	N/A	230	1	From Figure 3-10
72	I Center of Sweep	INT*2	Km/4	256	1	From Figure 3-10
73	J Center of Sweep	INT*2	Km/4	280	1	From Figure 3-10
74	Scale Factor	Scaled Integer	Pixels	1.0	0.001	From Figure 3-10
75	Number of Radials	INT*2	N/A	360	1	CVT view
77	Radial Start Angle	Scaled Integer	Degrees	0.0 to 359.0	0.1	} for } }
78	Radial Angle Delta	Scaled Integer	Degrees	1.0 to 2.0	0.1	} each } }
79	Run (0)	4 Bit INT	N/A	0 to 15	1	} } of
79	Color Code (0)	4 Bit INT	N/A	0 to 15	1	} for each } 360
79	Run (1)	4 Bit INT	N/A	0 to 15	1	} “run” } radials
79	Color Code (1)	4 Bit INT	N/A	0 to 15	1	} }
...	}
	Run (N)	4 Bit INT	N/A	0 to 15	1	[N is even] }
	Color Code (N)	4 Bit INT	N/A	0 to 15	1	}
	End of Block	4 Bit INT	N/A	0000	N/A	End of } block } marker }
	End of Block	4 Bit INT	N/A	0000	N/A	End of } block } marker }

[GRAPHIC ALPHANUMERIC BLOCK IS NOT USED BY HSR]

[TABULAR ALPHANUMERIC BLOCK IS NOT USED BY HSR]

